IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Kazumi NII et al.

Application No.: 10/560,735 Confirmation No.: 3722

Filed: December 15, 2005 Group Art Unit: 1794

For: ELECTROLUMINESCENT DEVICE Examiner: M.H. Wilson

DECLARATION UNDER 37 CFR 1.132

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Madam:

I, Mr. Toshihiro Ise, citizen of Japan, hereby declare and state that:

1. I received a Doctor's Degree in Chemistry from Tohoku University, Graduate School of Science in March 1999;

2. I joined Fuji Photo Film Co., Ltd. in April 1999, and have been engaged in the research and development of organic electroluminescence devices since that time;

3. I am a co-inventor of the present invention disclosed and claimed in the above-identified application; and

4. I am familiar with the Office Action dated March 19, 2009, and understand the Examiner's rejections therein.

Experiments

[Additional Comparative Examples 1 to 6, and Additional Examples 1 to 6: To show the superior effects by other red phosphorescent iridium complexes]

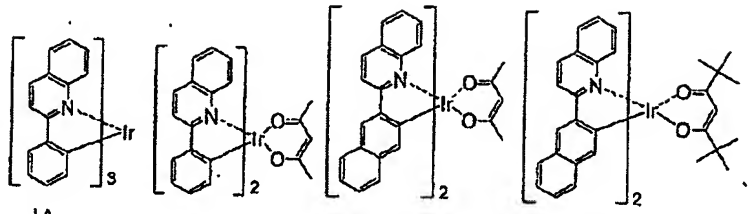
Devices of the Additional Comparative Examples 1 to 6 were manufactured in the same manner as the comparative example (sample 101) disclosed in the present specification except that the luminescent material was changed to those described in the following Table, and the obtained devices were evaluated in the same manner as disclosed in the present specification.

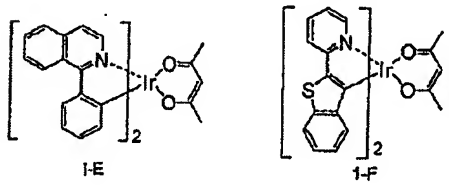
Devices of the Additional Examples 1 to 6 were manufactured in the same manner as the Additional Comparative Example 1 to 6 respectively, except that the 1st host material is changed to those described in the following Table, and the obtained devices were evaluated in the same manner as disclosed in the present specification.

[Additional Example 7: To show the superior effects when PtOEP is used in the claimed embodiment]

Device of the Additional Example 7 was manufactured in the same manner as the comparative example (sample 101) disclosed in the present specification, except that the 1st host material is changed to that described in the following Table, and the obtained devices were evaluated in the same manner as disclosed in the present specification.

Sample No.	1st Host (IP; eV)	2nd Host (IP; eV)	Luminescent Material	Electron Transport Material	External Quantum Efficiency	Remark
101	NPD(5.4)	Balq(5.8)	PtOEP	Balq/Alq	4.1%	Comparison
102	NPD(5.4)	Balq(5.8)	I-1	Balq/Alq	5.2%	Comparison
103	CBP(6.0)	Balq(5.8)	I-1	Balq/Alq	6.5%	Invention
104	CBP(6.0)	BCP(>6.3)	I-1	BCP/Alq	7.1%	Invention
Additional Comparative Example 1	NPD(5.4)	Balq(5.8)	I-A	Balq/Alq	5.1%	Comparison
Additional Example 1	CBP(6.0)	Balq(5.8)	I-A	Balq/Alq	6.7%	Invention
Additional Comparative Example 2	NPD(5.4)	Balq(5.8)	I-B	Balq/Alq	5.1%	Comparison
Additional Example 2	CBP(6.0)	Balq(5.8)	I-B	Balq/Alq	6.6%	Invention
Additional Comparative Example 3	NPD(5.4)	Balq(5.8)	I-C	Balq/Alq	5.0%	Comparison
Additional Example 3	CBP(6.0)	Balq(5.8)	I-C	Balq/Alq	6.7%	Invention
Additional Comparative Example 4	NPD(5.4)	Balq(5.8)	I-D	Balq/Alq	4.9%	Comparison
Additional Example 4	CBP(6.0)	Balq(5.8)	I-D	Balq/Alq	6.5%	Invention
Additional Comparative Example 5	NPD(5.4)	Balq(5.8)	I-E	Balq/Alq	4.9%	Comparison
Additional Example 5	CBP(6.0)	Balq(5.8)	I-E	Balq/Alq	6.5%	Invention
Additional Comparative Example 6	NPD(5.4)	Balq(5.8)	I-F	Balq/Alq	4.9%	Comparison
Additional Example 6	CBP(6.0)	Balq(5.8)	I-F	Balq/Alq	6.5%	Invention
Additional Example 7	CBP(6.0)	Balq(5.8)	PtOEP	Balq/Alq	5.5%	Additional





Results and Discussions

As is apparent from the above experimental results, the devices of the Additional Examples which satisfy the claimed characteristic "the hole transporting material in the hole transport layer has a smaller ionization potential than the two host materials in the light emitting layer" gave unexpectedly superior External Quantum Efficiency, being 1.3 times or more than the External Quantum Efficiency of the devices of the Additional Comparative Examples which do not satisfy the claimed characteristic. Such unexpectedly superior results would not have been expected by a person of ordinary skill in the art. Further, such superior results are obtained by the devices using various iridium complexes and platinum complexes.

Application No. 10/560,735
Attorney Docket No. 0649-1178PUS1

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Toshihiro Ise

Toshihiro ISE

Jun. 12. 2009

Date